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3040 Reuben Drive
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mEW ®

Balloon Boy Quick Start Guide, Ground Station

DOC NUM:

QSG-000117-02
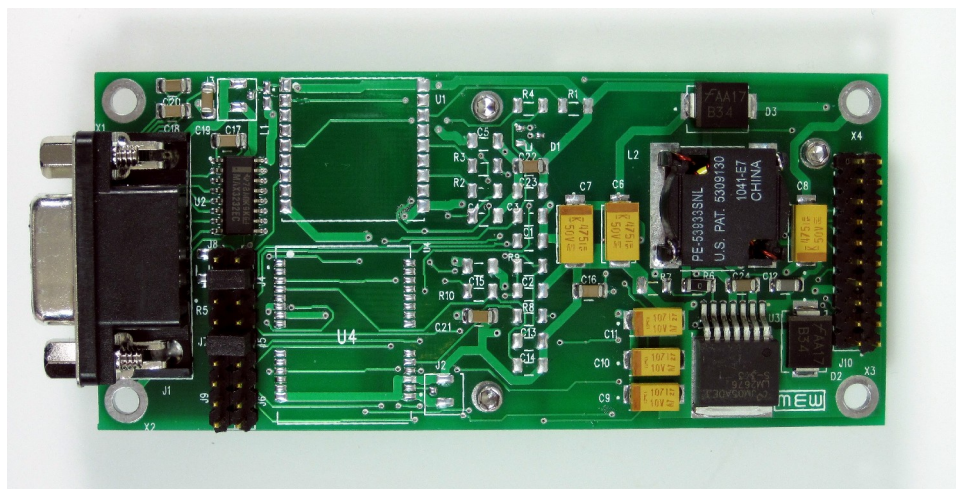
Revision Date: 4DEC2010

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1.0 Introduction

The Balloon Boy (BB) Ground Station (GS) detailed in this Quick Start Guide consists of a Printed Wiring Assembly (PWA) that is populated with a Laird Technologies® 900 MHz 200 mW RF modem. The Ground Station is not populated with a GPS receiver module. The MEW part number is PWA-000117-02.

2.0 Purpose

This Quick Start Guide is intended to be a brief introduction that will help the end user to rapidly "bring up" the system to quickly verify functionality.

3.0 Scope

This Quick Start Guide is applicable to the Balloon Boy Ground Station PWA bearing the part number PWA-000117-02. This part is one of three configurations that utilize the MEW Printed Wiring Board (PWB) PWB-000117-01. The other two starting configurations (PWA-000117-01 and PWA-000117-03) are detailed in their separate respective Quick Start Guides. All common characteristics and associated data can be referenced in the Balloon Boy User Manual, MEW document number MAN-000117.

Instructions in this Quick Start Guide assume that the Ground Station is configured with the "as shipped" default configuration.

4.0 Norms

For definitions, abbreviations, acronyms, safety, quality statement, and agency approvals please reference the Balloon Boy User Manual (MAN-000117)

Please note the following specific safety requirement:

WARNING: This equipment has been approved for mobile applications where the equipment should be used at distances greater than 20 cm from the human body (with the exception of hands, feet, wrists, and ankles). Operation at distances of less than 20 cm is strictly prohibited and requires additional SAR testing.

The above hazard is minimized by leaving the default configuration of the BB GS as a "client". This prevents the GS from transmitting continuous data under normal operation.

5.0 Getting Started

5.1 Host Computer and Serial Cable Connection

Verify that power to the PWA is disconnected.
Connect the male end of a straight (i.e. not a null modem cable) male to female 9 pin serial cable to the Ground Station serial port.
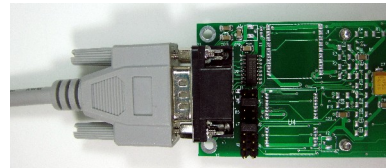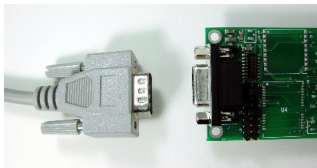
Connect the female end of the serial cable to the host computer serial com port.

Power up the host computer and allow it to complete boot and login. Run selected host software. The freeware VisualGPS^{TM} program is known to function well with Balloon Boy. Sometimes during boot up, when the host pc com port is connected to an active GPS character stream, the Microsoft Windows® operating system confuses the data as a serial mouse connection and assigns the com port as such. This results in "mad mouse" syndrome (MMS). MMS causes random and erratic mouse pointer movement. To avoid MMS simply allow the host computer to completely boot up before applying power to the Balloon Boy Ground Station.

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5.2 RF Modem Antenna

Verify that power to the PWA is disconnected.
Connect the RF modem antenna coaxial cable to the MMCX connector on the end of the RF modem. Common practice is to not power up the system unless a proper antenna or 50Ω dummy load is attached to the RF modem prior to power up.

Connect the other end of the RF modem coaxial cable to the chosen directional ground station antenna.

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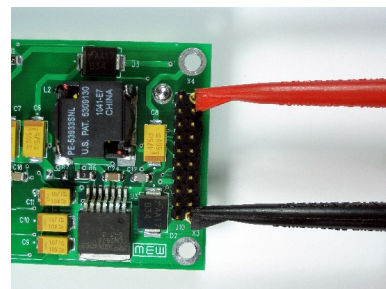
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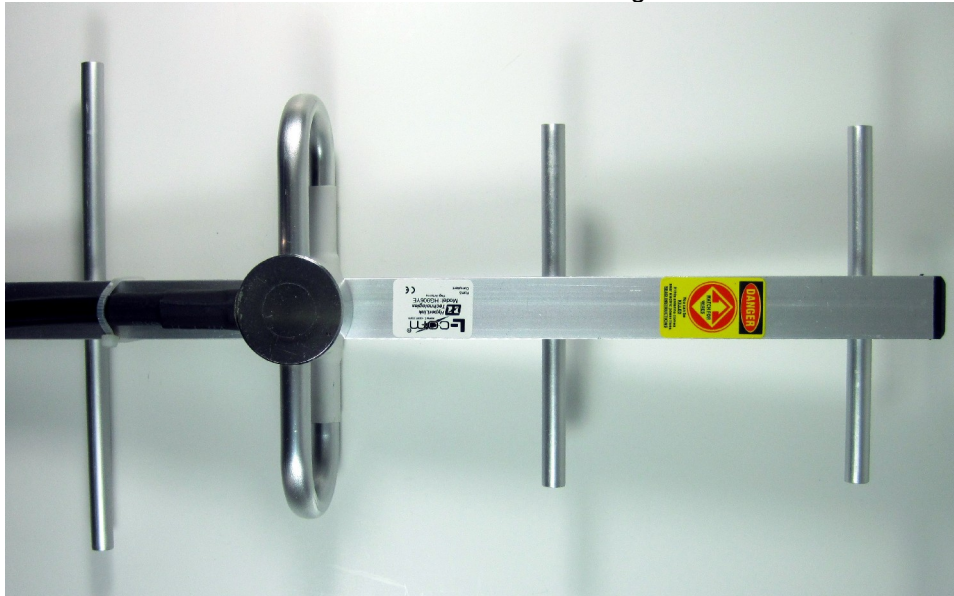
5.3 Battery Connections

Connect the negative terminal of the battery to J10 pins 1 and/or 2. These two pins are internally connected to each other on the PWB.

Connect the positive terminal of the main battery to J10 pins 19 and/or 20. These two pins are internally connected to each other on the PWB.

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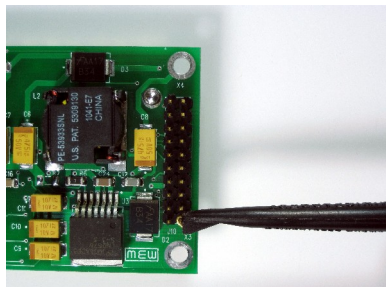DOC NUM:
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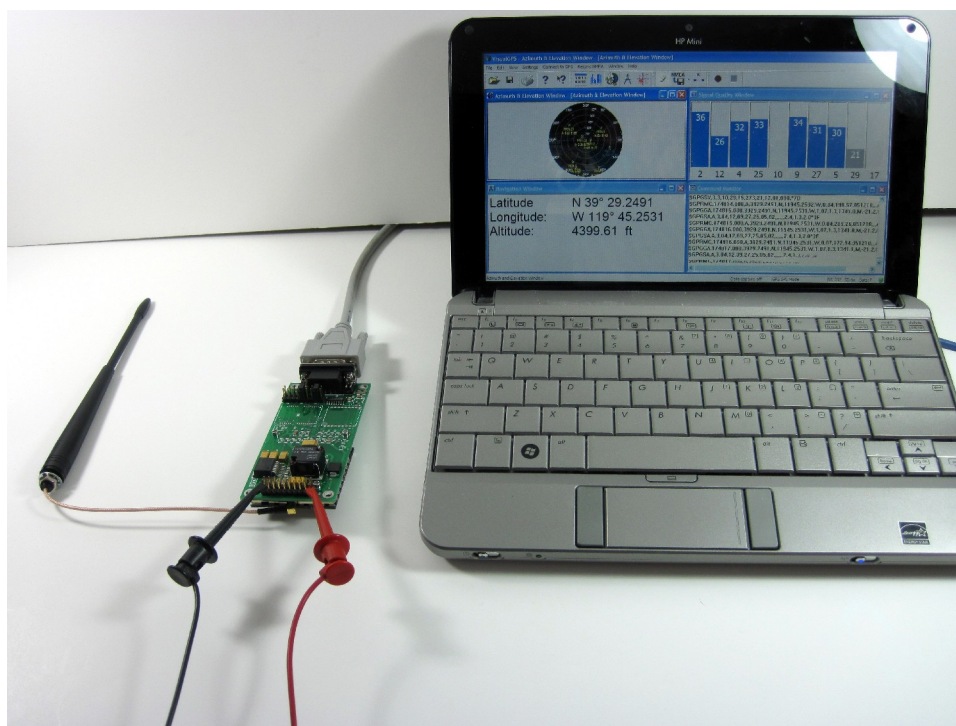4DEC2010   NC

The main battery voltage should be in the range of 8 to 28 Vdc. The power consumed is essentially constant so that higher battery voltage results in lower current draw and vice versa. Rev B and later PWAs are reverse power polarity protected.

A power switch in series with the main battery wire is very convenient. The BB GS will function continuously (default configuration) for about 8 hours when powered from a single fresh alkaline 9V transistor battery.

A piezo alarm and series toggle switch connected between the active low "in range" signal (J10 pin 7) and +3.3 Vdc (J10 pin 5 and/or pin 6) will provide an audible "transmitter in range" tone to help in manually pointing the directional antenna toward the signal source.

Illustrated below is a Balloon Boy Ground Station connected to a host computer running Visual GPS and logging realtime NMEA GPS data to an ASCII text capture file.

This completes the bring up of the Balloon Boy Ground Station

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6.0 Disclaimers

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MEW LLC assumes no liability from use, misuse, or misapplication of the equipment referenced in this document. The equipment referenced in this guide is specifically prohibited from use in human life support, medical, and/or health and safety critical systems or paths.

Design change, product enhancement and specifications are subject to change without prior notice at any time at the sole discretion of MEW, LLC.

7.0 "No Double Speak" Warranty

Mew LLC will repair or replace end user hardware that has been shown to be defective from the factory for a period of one year from delivery of product. End user must request a Return Goods Authorization (RGA) from MEW LLC prior to shipment or delivery of defective material. Warranty does not cover material that has been damaged from shipping, dropping, ballistic earth impact, EOS, ESD, physical damage due to negligence, fire, water, moisture, exceeding the environmental, or electrical specifications.

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8.0 Document Revision History

Revision	Date	Changes	Authorization	CC&BW
NC	4DEC10	Initial draft for review	D.M.B.	J.E.B.

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